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Curriculum Ideas for Teachers

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Children With Physical Handicaps and Health Impairments

This support document to *The Formative Years*, one of a series dealing with exceptional children in the Primary and Junior divisions, presents information and suggestions for planning programs for children with physical handicaps and health impairments.

Introduction

This document focuses on children who have major orthopaedic and medical conditions that originate in childhood. It outlines the needs of such children, and presents practical suggestions for teachers in regular and special classes or schools who have the responsibility of providing appropriate educational programs for them.

Because of the medical orientation of these children, it is vital that there be continuous communication between educational and health personnel. Teachers should be able to obtain through parents and public health nurses any health information that has educational implications.

Suggestions for the modification of school and classroom facilities to accommodate the needs of physically handicapped students are provided in the Ministry document entitled *Designing Schools for the Physically Handicapped*.

Definition

A physically handicapped child is one who has any physical impairment or deficiency and who requires sustained assistance to perform physical and social tasks in a manner similar to that of non-handicapped children of the same age or developmental level.

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Long-Term Medical Conditions

1. Cerebral Palsy

This is a non-progressive disorder of movement or posture caused by malfunction or damage to the brain before, during, or up to three years after birth. Uncoordinated movement and associated disorders vary in type and severity. Possible associated conditions include:

- varying degrees of physical disability, such as quadriplegia, hemiplegia, and paraplegia;
- speech and language deficiencies;
- perceptual and visual-motor disorders;
- oral-dental difficulty in swallowing and controlling drool;
- mental retardation;
- visual problems;
- convulsive disorders;
- hearing loss.

It is recognized that pupils with cerebral palsy will vary greatly in intellectual ability. While all will benefit from training in daily living skills, the greatest emphasis for some should be placed on their acquiring a method of communication and independent mobility. Individualized educational programs must be geared to the long-term vocational and recreational needs of these pupils.

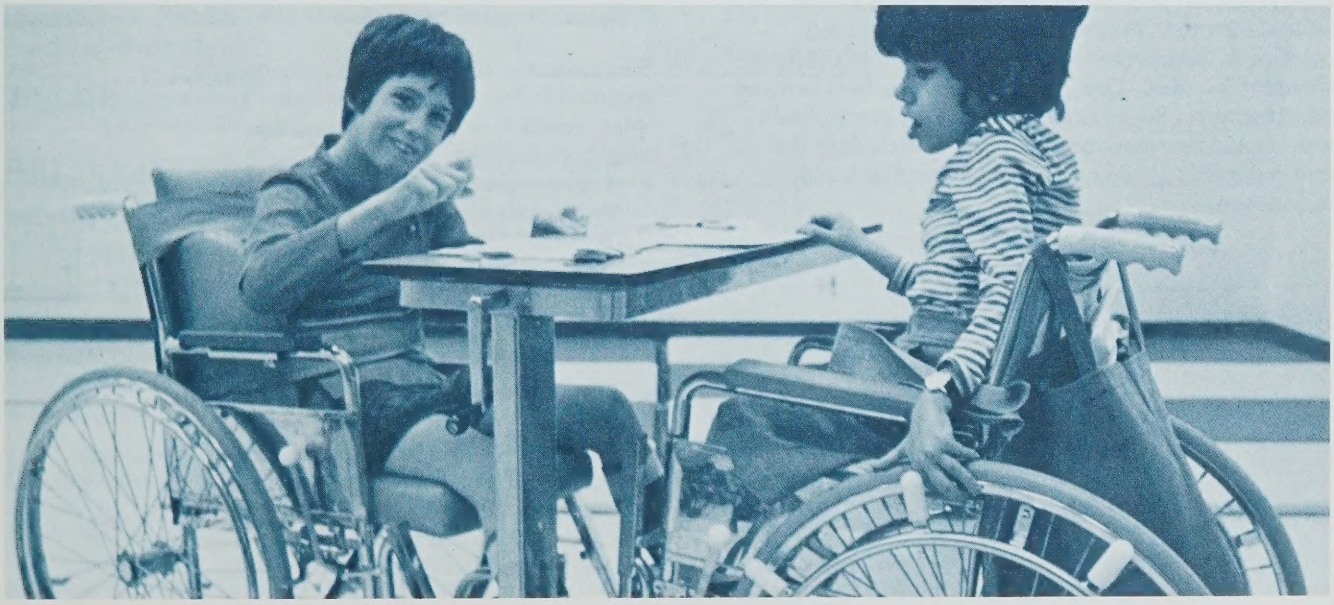
2. Spina Bifida – Myelomeningocele

Due to abnormal fetal development, the bones of the vertebral column fail to close. The spinal cord covering and the cerebrospinal fluid protrude in a sac which is covered with a thin, transparent membrane. Corrective surgery is necessary. Possible associated conditions include:

- flaccid paralysis of the trunk and lower limbs;
- bone deformities – dislocation of hips, club foot, scoliosis (spinal curvature), kyphosis (humpback), lordosis (swayback);
- loss of sensation to pain, temperature, and touch, resulting in skin problems such as burns and pressure ulcers;
- bowel and bladder paralysis, which require much care in order to prevent serious kidney infections;
- hydrocephalus – the brain ventricles retain fluid which distends and can compress the brain cells and nerve fibres. This may result in mental retardation, spastic paralysis of the lower limbs, and seizures. Children with hydrocephalus are frequently very verbal, have somewhat parrot-like speech, and often learn well by rote, which may mask low intellectual functioning. Others may have average ability. It may be helpful to obtain a complete psycho-educational assessment in order not to raise unreasonable expectations for academic achievement.

Since these children often lack bowel or bladder control, their physical care poses a great problem to teachers and to the pupils themselves. The mobility of these children may be limited because many of them will be confined to wheelchairs. Assistance with personal care may also be required.

The children are often absent from school for ongoing medical care in neurosurgery, urology, and orthopaedics. It will likely be necessary to adjust the education program with respect to the timing of the teaching or reteaching of new concepts and of informal or formal tests.



3. Muscular Dystrophy – Duchenne Type

This is a progressive diffuse weakness of all muscle groups from unknown causes. The muscle cells degenerate and are replaced by fat and fibrous tissue. This disease mainly affects boys. Possible associated conditions include:

- obesity because of restricted activities;
- skeletal deformities;
- reduced intellectual ability;
- fatigue.

A student with muscular dystrophy may have limited potential, and, therefore, a full educational assessment should be made. The major educational aim should be one of fulfilment, enjoyment, and creativity for the child within the framework of the curriculum and the child's physical limitations. A regular rest period may be necessary. Professional teamwork, involving the parents and school and health personnel, is necessary to cope with the child's personal adjustment to the disability.

4. Osteogensis Imperfecta

The common term is ''brittle bone disease''. The cause is unknown but the condition is clearly inherited. Males and females are equally affected. Possible associated conditions include:

- a triangular facial appearance because of the bone formation of the skull; a barrel-shaped chest; scoliosis of the spine; small and bowed limbs; and joints that are excessively mobile (the child may be referred to as double-jointed);
- teeth that are easily broken and prone to cavities and discoloration;
- eyes in which the whites are often quite blue in colour;
- skin that is thin and often appears translucent;
- deafness due to a bone deficiency of the middle ear ossicles;
- a constant ringing of the ears and possibly dizziness.

These pupils fall into the normal range of intellectual abilities; therefore, the programs should be adjusted accordingly. Teachers should watch for signs of deafness and visual disorders. Care must be taken at school to avoid severe fractures. Social games, chess, card games, and music should be encouraged as it is with such skills that these children may make and maintain normal social relationships.

5. Arthrogryposis

This is a congenital disease; children are born with stiff joints and weak muscles. Possible associated conditions include:

- poor range of motion in joints;
- congenital heart disease;
- urinary tract abnormalities;
- respiratory problems;
- abdominal hernias;
- various facial abnormalities.

These children fall into the usual range of intelligence and, if motivated, will strive for independence and academic achievement. Some may have to be directed towards goals that do not involve manual skills or general mobility. If the child's handwriting is too slow, oral reporting or use of an electric typewriter should be considered.

6. Juvenile Rheumatoid Arthritis

This chronic disease of unknown origin affects any or all joints, causing swelling and pain in the joints and a general feeling of malaise. Possible associated conditions include:

- joint deformities because of the lack of movement of the joints during painful flare-ups;
- in severe cases, side effects from medication;
- arrested growth, some physical limitations, obesity, and a characteristic moon-shaped face;
- brittle bones;
- a decreased resistance to severe infection.

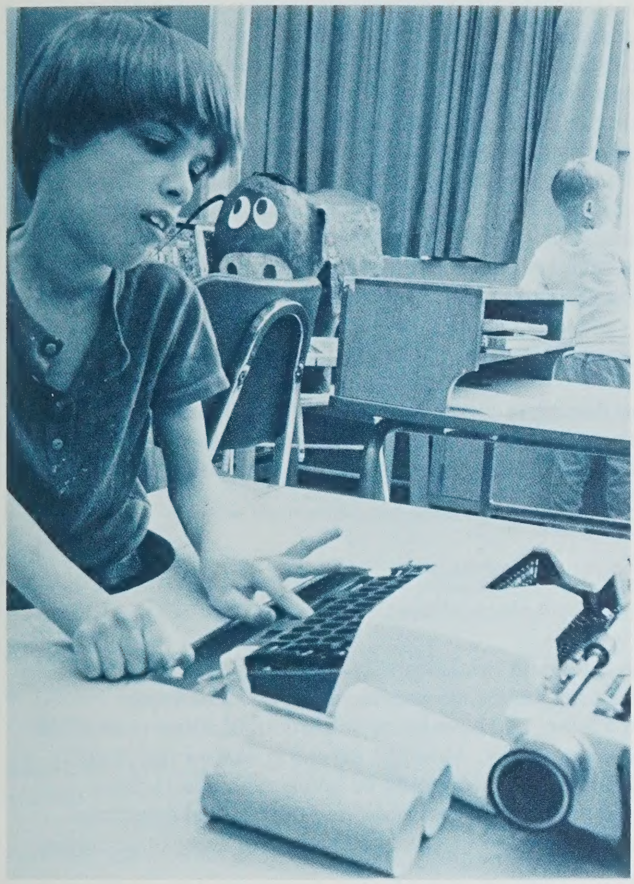
The child will require support in order to cope with fear, pain, depression, and inhibitions. Attendance at school may be irregular, and, therefore, individualized programs are recommended. Part-time attendance or late arrival may be necessary. A combination of home instruction and close liaison with school programs may be necessary during the winter months.

7. Spinal Muscular Atrophy

This disease of the spinal cord is characterized by progressive degeneration of the motor nerve cells of the spinal cord and in the brain stem. Possible associated conditions include:

- progressive muscle weakness causing difficulty in sitting, walking, and climbing stairs (The child may fall frequently.);
- the development of joint deformities because of immobility and muscle weakness;
- brittle bones;
- arrested growth.

Muscle weakness may necessitate modified educational programs. The child may need to use a tape recorder or typewriter to make notes. A limited involvement in physical education classes and an increased involvement in some non-motor activities may be appropriate.



8. Amputation

The absence of a limb, limbs, or a portion of a limb may be present at birth (congenital) or may be the result of an accident. These pupils are usually fitted with prosthetic devices (artificial limbs) and become adept at using them. Replacements are necessary as the child grows.

Most of these children can participate in the school programs and are aware of their limitations. The school nurse can obtain additional information if necessary. Conferences with parents, the school nurse, and the child will provide information regarding the pupil's involvement in the full school program. For instance, it may be possible to modify the physical education program so that the child can participate fully in it.

9. Brain Injury

Brain injury can result from a mechanical trauma such as a motor vehicle accident. Possible associated conditions include:

- flashes of recall from former education;
- psychological and emotional overlays;
- lung disabilities;
- speech problems;
- motor and other sensory deficiencies.

Psychological and emotional factors may be pronounced, and will have to be carefully considered in program planning. The basic skills should be reviewed, such review to be adjusted to the pupil's age. Tactile or other sensory aids should be used to support the program.

10. Burns

Third-degree burns are the most severe, and can cause physical disabilities. All layers of the skin, and often the underlying tissue such as fat and muscle, are completely destroyed. Possible associated conditions include:

- the necessity for extensive skin grafting and much hospitalization. The grafts heal as scar tissue, which is subject to contractions, producing deformities at affected joint areas;
- the necessity for the amputation of destroyed limbs or parts of limbs.

Gaps in education may occur because these pupils may have to spend long periods in hospital. Treatment is an ongoing process over a number of years. The breakdown of a skin graft under a prosthetic appliance may result in a pupil's having to function in the classroom without the appliance for a period of time, thus necessitating some modification in the program.

Conditions of a Temporary Nature

1. Idiopathic Scoliosis

This is a painless spinal deformity of unknown cause. Usually noticed during the growth spurt of pre-adolescence, it is more frequently found in girls than in boys. Depending on the severity of the condition, treatment may include exercises, a brace, or spinal fusion. Possible associated conditions include emotional problems related to cosmetic factors.

The educational implications of this condition depend on the type of treatment. Seating adjustments may be necessary. Temporary changes to the physical education program may be made on the recommendation of health personnel.

2. Legg-Perthese Disease

This is a destruction of the growth centre at the hip end of the thigh bone (femur). Boys are more frequently affected by it than are girls. It is characterized by a limp and pain in the knee or thigh and occasionally the hip joint. Treatment may take an average of one to two years until the dead bone is absorbed and new bone laid down. The child should remain in the local school with alterations made to the normal school program.

Other Medical Conditions

The child with chronic health problems suffers greatly because of irregular attendance at school. Hospitalization and clinic appointments conflict with daily routines; there is added stress on family relationships; and the full circle of additional problems is generated: educational retardation, poor self-esteem, and concern over a future vocation.

The many types of children's illnesses affect different age groups in various ways. The classroom teacher, however, should be aware of possible learning problems, motivational lags, and the reduced physical energy that stems from many medical conditions.

1. Cystic Fibrosis

This disease is characterized by abnormal mucus secreted in the pancreas, lungs, and other organs. The child must take heavy doses of medicine. Possible associated conditions include:

- lung infections;
- intestinal problems;
- impaired physical stamina.

The child with cystic fibrosis may, of necessity, cough frequently, have increased appetite, be on multiple medication, and have to use washroom facilities more often than other pupils. Although fatigue is a factor that bears watching, the child should be involved in a full school program under the supervision of the medical consultant. Field trips and overnight excursions will necessitate nursing care and diet supervision.

2. Asthma (Allergic)

Laboured and wheezing breathing is caused by an interference in the normal flow of air in and out of the lungs. There may be a shortness of breath and coughing. Possible associated conditions include:

- allergies — food and/or skin;
- emotional factors;
- mood changes due to lack of sleep.

Prolonged absenteeism presents educational problems to pupils suffering from asthma. This necessitates additional assistance in the acquisition of skills. It is important to avoid bringing into the classroom anything that may trigger a child's attack: pets, plants, and foods must be carefully chosen. Glue, paste, and sprays should be checked with a nurse. Apart from medical treatment, the asthmatic pupil should be treated like all other pupils whenever possible. Lateness and part-time attendance should be permitted if the pupil is going through a difficult asthmatic period.

3. Epilepsy

Epilepsy is a neurological condition resulting from irregular electrical activity in the brain. Today it can be treated so that seizures are eliminated or become so infrequent that a child can lead a normal life at school, at work, and in the community.

Pupils who are prone to seizures are usually not identified because they are already under medical control. Teachers should be aware of the effects of some of the drugs and, in consultation with the school nurse and the parents, record and report any extreme changes in each child's behaviour.

Some drugs cause drowsiness that may be interpreted as laziness or disinterest in school, while other medication may make the child hyperactive and difficult to handle. In some cases, climbing programs should not be permitted, and extra supervision in the swimming pool may be necessary for a pupil with a history of epilepsy.

Grand mal is infrequent in school-age children. It can be dramatic, however, and, if not handled carefully, it can be upsetting both to teachers and the other children in the class. Literature dealing with this subject is available to teachers and students from Epilepsy Ontario, 90 Eglinton Avenue East, Suite 405, Toronto, Ontario M4P 1A6.

The teacher can help a pupil who is having a grand mal seizure by following these first-aid procedures:

- Keep calm. A seizure that has begun cannot be stopped.
- Ease the child to the floor and loosen the clothing at the neck and waist.
- Turn the child on his or her side so that saliva can run freely from the mouth.
- Do not give the child anything to drink.
- Do not restrict the child's movements except to protect the head.

After a short rest, the child can usually resume normal activities.

Petit mal seizures are difficult to identify; they affect the child's educational progress in a more subtle manner. Momentary lapses of attention that may look like daydreaming may actually cut the child off from school activities many times during an hour's lesson. This leaves the pupil with "bits and pieces" of information that may not make sense to him or her. This may create a build-up of learning problems and related behavioural complications. Since these seizures are so difficult to diagnose, parents, teacher, and the child may be unaware of them.

4. Haemophilia and Anemia

Haemophilia is an inherited disorder of the blood marked by a permanent tendency to spontaneous or traumatic bleeding due to a defect in the clotting ability of the blood. A child with haemophilia should be protected from bruising and cuts. He or she may miss a great deal of school because of swollen joints, which are very painful. *Anemia* is a condition in which the quantity of haemoglobin contained in the blood is below normal. This results in a decreased ability of the blood to carry oxygen. A child with anemia may have low physical tolerance and may become tired and irritable. In the case of either haemophilia or anemia, close liaison with parents and the school nurse is essential.

5. Diabetes

Teachers should be in close contact with the parents of a diabetic child and with the school nurse. In most cases a child is able to cope with insulin treatment. Emergency information concerning diabetic coma and insulin reactions should be available, particularly if a child is involved in extra-curricular activities and field trips.

Curriculum

The curriculum should provide the same opportunities to physically handicapped children, within their physical limitations, that are given to every pupil in Ontario as outlined in *The Formative Years:*

- to acquire the basic skills fundamental to his or her continuing education;
- to develop and maintain confidence and a sense of self-worth;
- to gain the knowledge and acquire the attitudes that he or she needs for active participation in Canadian society;
- to develop the moral and aesthetic sensitivity necessary for a complete and responsible life.

Many pupils with physical handicaps will require only slight modification or adaptation of the content of the curriculum and some modifications to equipment and facilities.

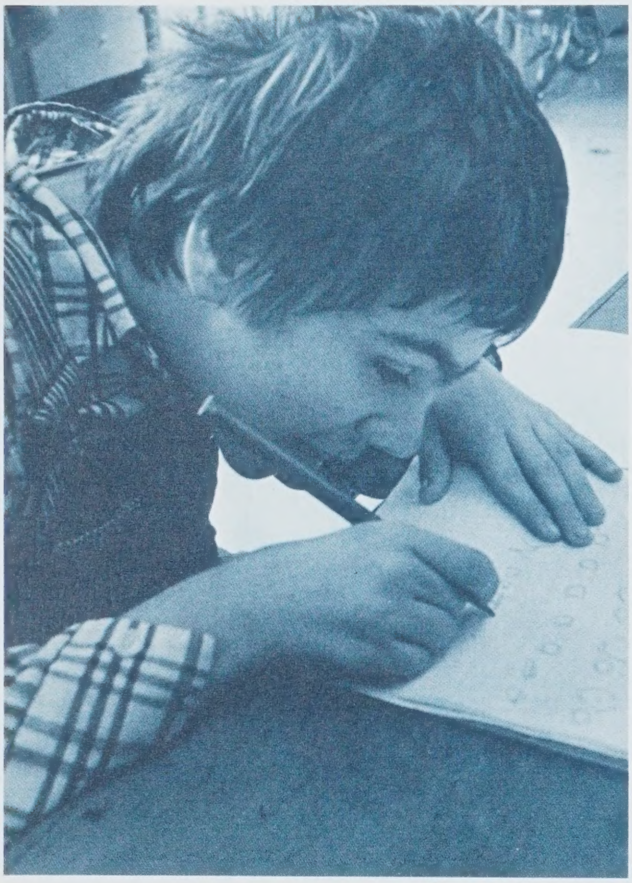
Time Element

It may be necessary to allow a pupil with physical handicaps more time to complete tasks than a physically normal child.

When moving from one activity to another, allow a pupil to develop as much independence as possible. Do not cause guilt feelings by requiring others to wait for him or her. Give a child a head start if necessary.

Writing notes is often a long and laborious task. Another pupil could make a carbon copy and give it to the child who is experiencing difficulty.

When assigning seatwork, give the physically handicapped pupil sufficient work to challenge, but not frustrate, him or her. The pupil may be allowed additional time, a student ''writer'', a tape recorder, or the opportunity to give an oral presentation.



Teaching Suggestions

Learning disabilities are common to children whose physical handicap is caused by a brain injury. Spatial disorganization, distractibility, and a short attention span are prime problems. A pupil has difficulty copying from the chalkboard, loses his or her place when reading, or omits questions when doing seatwork. The following suggestions will aid teachers in helping these pupils. Many others are available in the literature dealing with learning disabilities.

- When using the chalkboard, print or write questions using large, well-spaced letters. Alternating questions should be written in different colours.
- In textbooks, isolate the question or sentence on the page by using a brightly coloured sheet of heavy art paper with a cutout window.
- Seatwork prepared on a spirit duplicator with light print may be confusing. Adapt the handicapped pupil's sheet by colour-coding the questions or by covering every other one with masking tape.

Teachers should use the same standards for evaluating the achievement of a handicapped child as those used for the rest of the class. A handicapped pupil deserves the right to be treated in the same way as his or her peers.

Such pupils should be included in all activities – if not directly, then indirectly.

It is important for a pupil to be allowed the time to do what he or she is capable of doing for his or her own physical and social development. In this way each child's acceptance by other pupils will also be enhanced. Independence will be the handicapped pupil's greatest asset, and the child should be helped to do things for himself or herself rather than having them done for him or her.

Some pupils do not possess the emotional maturity necessary to cope with a disability and to compete academically. A second year in a class, therefore, may consolidate a pupil's gains sufficiently to enhance his or her self-image.

All pupils, including those who are transported to and from school, should learn important functional activities such as the use of money, how to tell the time, and how to write their name, address, and telephone number; pupils should also have a working knowledge of themselves – their limitations and their strengths.

Each pupil should have his or her own textbooks and subject outlines when at home or in hospital because of illness or reassessment; this will foster the pupil's feeling of belonging to his or her home school.

The successful integration of a physically handicapped pupil into a regular classroom requires clear and effective communication among all concerned with the development and educational program of the child. The placement process must include parents, medical support services, the school board, social services, the principal, and the prospective teacher. School personnel who assume daily responsibility for each pupil must be informed and confident. Therefore, they should have the benefit of any information that is pertinent to each child's education.

Teachers should always prepare the rest of the class for the arrival of a new handicapped pupil. Most children are willing to answer the questions about themselves that their classmates will invariably ask.

Social Needs

Seating

- Having the desk at a proper height is important. If the seat is too low, use a covered telephone book to raise the pupil.
- If the pupil's feet do not reach the floor, place a wooden box with a non-slip bath mat under his or her feet.
- If the pupil's balance is poor, provide an armchair for support.
- The desk should be positioned so that the pupil can move with ease; consideration should be given to visual problems, distractibility, and ease of communication.

Snack and Lunch Time

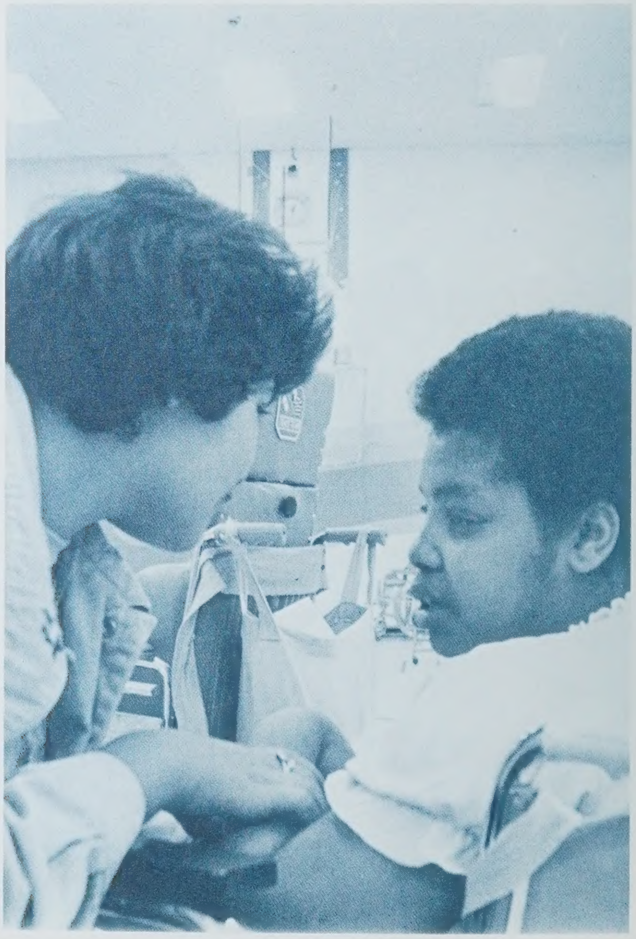
- A piece of dycem, a foam-backed place mat, a dampened sponge, or a facecloth will stabilize a plate.
- Dishes with a well-defined rim for young pupils or heavy enamel or cast-iron baking dishes for older children are useful.
- Cutting away the front of a paper or plastic drinking cup will facilitate drinking.
- A pusher can be made by flattening the handle of a dessert spoon.
- Two-handled cups and bendable straws are also useful.

Clothing

- A large button or spool can be attached to a snowsuit zipper.
- Slip-on rubber shoes are useful for activities in the gymnasium.
- Elastic waistbands on skirts and pants eliminate the need for buttons, zippers, and snaps.
- Pupils should wear snowmobile boots in the winter.
- Plastic bags placed over shoes reduce friction in pulling on overboots or snow pants.
- Use a hockey helmet for a child who is prone to falling when jostled.
- When dressing the child, it is often easiest to put the child's arms into his or her sleeves and then pull the coat over his or her head. It is helpful to put the disabled arm of a child into the sleeve first and to take it out last.

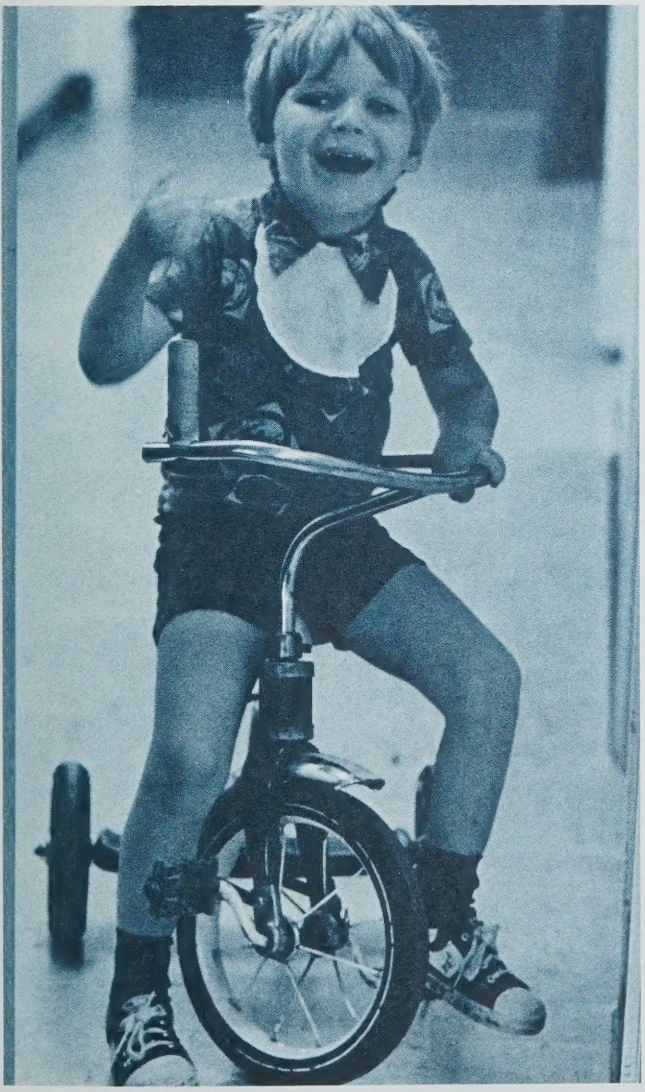
Special Considerations for Students With Motor Disabilities

- For a child with a weak grip, provide a large Primary pencil. For a child whose grip is too low or too high, a small elastic band should be placed just below the tip of the tripod grip on an ordinary pen or pencil. For the child whose writing or printing is weak or wavering, 2B pencils should be provided.
- A string should be tied to pencils so that they can be easily retrieved when they fall.
- A wooden moulding glued to the desk top prevents pencils or crayons from falling.
- Some pupils can see better with a slightly slanted desk surface; wooden blocks can be fitted to the front desk legs.
- To stabilize paper on the desk top, cello or masking tape or a dycem sheet can be used. A foam-backed plastic table mat with a quilted or rubberized surface can also be effective. Paper clips can be used to hold paper to the table mat. An office-type, heavy-based dispenser for cello or masking tape might be provided so that a pupil can use these materials independently.
- A child should be encouraged to use a crippled hand as much as possible. For example, when the child is working, the teacher can encourage the child to use the less functional hand to stabilize the paper or at least to position the hand in his or her visual field so that it is not forgotten.
- Plasticine can be used to mould handles for pens, pencils, or brushes; to anchor toys to the table, desk, or floor; and to hold cards and other small articles.
- Clay or play-dough can be used to mould individualized three-finger grips for pencils.
- A strip of masking tape placed down the centre of the desk may help a pupil distinguish between the right and left sides.
- For a pupil with a poor grasp, a separate eraser should be used. Turning the pencil upside down for erasing causes confusion.
- A cookbook rest can be used to support a book upright for typing from or for better eye pursuit in copying.
- An electric typewriter with a finger guard and regular or Primary-type characters offers a means of written communication. This should be used, however, in conjunction with printing or writing practice.
- If a pupil has difficulty in positioning paper in a typewriter, a continuous roll of paper will overcome the problem.
- Cursive writing can be taught to a child who is slow to develop the necessary printing skills because of a co-ordination problem.
- For an awkward pupil, a soup can mounted on a 10 cm × 10 cm plywood base provides a non-spill container for crayons, pencils, and tempera paints. Styrofoam cups keep the colours separate.
- A round, wooden drawer pull should be attached to the centre of a ruler and a pimpled rubber strip to its lower surface for ease of handling.
- Left-handed scissors with one blade coloured, or two-handed scissors, may be necessary for some pupils.
- Scissors may be mounted on a block of wood to simplify the opening and closing of blades.
- Electric scissors are useful for some pupils.



Additional Useful Equipment

- For young children having difficulty in threading beads, wrap scotch tape around thread or wool to make a stiff, needle-like tip.
- A *Scotch purse* (having no snap closures) is useful for the child who brings money to school.
- A loose-leaf ring secured through the label facilitates hanging up a coat or jacket.
- A clothes pin can be used to label boots and to clip hat and mitts together.
- Upholstery webbing with velcro closing is helpful in securing a child to playground equipment.
- A full-length mirror may help a child to see and accept his or her own body.
- In working in mathematics, a child who is able to use one finger will find a calculator (Can Canola 1802) useful.
- *Medic Alert* bracelets provide instant medical information concerning the physically handicapped in case of emergency.
- Plastic cards worn around the neck or pinned to clothing serve to identify the non-verbal child.
- A daily news-type notebook helps parents and teachers of non-verbal pupils to communicate with the child.



Social-Emotional Needs

A child's parents must not be overlooked. They are the earliest continuing contact and source of support in a child's development. They provide a reliable source of information and co-operation for the teacher, which fosters a feeling of security in a pupil.

The school staff should develop healthy attitudes about a child's disability; they should be knowledgeable about each child and his or her needs, and sensitive to him or her as a person. The value of having current knowledge on the pupil's condition and its educational implications cannot be overestimated.

The development of a child's self-concept is important. Attention to the following areas will help each child develop feelings of self-respect and self-worth, and ego strength.

1. Independence

Every opportunity should be afforded each pupil to do as much for himself or herself as possible. It is important not to focus on a child's disability to such an extent that he or she feels *different* from peers and, therefore, loses opportunities for normal social-emotional experiences. The teacher should not be rigid in encouraging independence; at times the teacher will facilitate the child's social-play opportunities by doing some task for him or her.

Each child should be allowed sufficient time to develop at his or her own speed, and the teacher's approach in this regard should be flexible. Mechanical aids or other necessary devices should be provided as required, and encouragement and praise given when deserved.

2. Pity and Overprotection

Teachers should consider the following suggestions in this sensitive area:

- Beware of the tendency to overprotect the pupil.
- Counsel parents and others against overprotection.
- Advise each child on how to respond to overprotection and pity.
- Teach each child to be aware of the attitudes of others and of how he or she is perceived by them. Teach the child how to ask for help. Teach him or her to be considerate of others in fulfilling his or her own needs.

3. A Sense of Reality

To help each child to realize his or her true capabilities:

- Do not give unearned praise.
- Give each child an honest assessment of his or her effort.
- Evaluate each child fairly so that he or she has an honest feeling of how he or she measures up.
- Do not be afraid to say "You're not able to do that." Explain the reason, and provide ample opportunities for each child to develop self-confidence and to experience success.
- Encourage open, honest, supportive discussions with both the parents and the child concerning the child's disability and the resulting problems in social-familial settings, friendships, fears, and future aspirations.

4. Special Support

In order that each child may develop a positive self-concept, attention given to the remediation of his or her deficiency should be balanced with the development of his or her strengths, whether academic or social. To avoid discouragement and failure, expectations and goals for each child should be realistic and attainable.

Teachers will recognize that the majority of pupils with a physical handicap or health impairment have more than one disability affecting their education. In order to provide an appropriate program, teachers must establish ongoing communication with parents, hospital services, treatment centres for the physically handicapped, and other school personnel.

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